The Professional Development Needs of Academic Teachers Adding Career-Technical Education Licenses

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ABSTRACT

This study reports the results on the needs of an emerging population of Career - Technical Education (CTE) teachers in Ohio. The purposes of the study were to determine the needs of the teachers and the effectiveness of the teacher education program they completed to add the CTE license. Twenty six academic teachers added a CTE license through a modified licensure program at Kent State University over a two year period from 2008-2010. The primary goal of the licensure program was to support the academic teachers in the transition from the academic to the CTE environment. Six data collection sources were used to determine the effectiveness of the program. A profile of the academic teacher was also identified. The results indicate that the academic teachers were successful and satisfied as they made the transition. The teachers also felt least competent in specific CTE competencies such as collaborating with employer/job sites, working with advisory boards and planning work-based learning instructional activities. Suggestions to assist the teachers were provided.

Background

Many factors are influencing the considerable change CTE has experienced in recent years. Among the factors are; 1) an expanded mission, 2) alternative education licensing options for teachers, 3) the profile of CTE teachers, and 4) teacher education programs for CTE.

Expanded Career - Technical Education Mission

Secondary CTE is a field in transition moving from a primary focus on preparation for entry level employment to preparation for continuing education (National Research Center for Career and Technical Education, 2011). Implied in this transition is a greater emphasis on academic integrations. This transition is a result of changes in employer expectations for competent workers. Federal legislation for CTE programming has followed this trend and guides much of the transition from a vocational to the broadened mission of a CTE model. Federal legislation has set the agenda for CTE at all levels. The decade of the 1990's saw numerous federal legislative initiatives aimed at setting new directions, creating new models and vision for Career - Technical Education (Scott & Sarkees-Wircenski, 2007). The Perkins Act of 2006 continues to emphasize preparation for post-secondary by greater integration of academic and technical education/standards (Perkins IV - Career - Technical Education, 2006).

Career - Technical Education programs are becoming more academically rigorous and less directly tied to single occupations that are incorporating basic academic instruction in a purposeful way into Career - Technical Education courses (Camp & Johnson, 2005). This change is evident in the types of programs emerging in CTE.

Changes in programs reflect an expanded view of CTE. For example, programs in bio-technology, athletic training, performing arts and information technology are more academic in nature. Also, programming related to TechPrep, Science, Technology, Engineering and Mathematics (STEM) and Project Lead the Way (PLTW) have expanded CTE programming into the academic arena.

If Career - Technical Education is to carry out expanded mission, ways must be found to teach both technical and academic content (National Research Center for Career - Technical Education, 2011).

Alternative Teacher Education Options

Generally, in education there has been an explosion in the number of teachers entering through alternative routes. Some indications are as many as 33% of all new teachers enter via an alternative route (Feistritzer, 2007). The report indicates that alternative licensure approaches were focused entirely on academic subjects. In addition, a July, 2011 report on alternative teacher certification by the National Center for Education Information made no reference to alternative approaches in CTE. As such, certainly no mention is made of academic teachers who add a CTE area (Feistritzer, 2011).

Many CTE programs and states have used alternative education licensing options for many years. However, the research on the topic has been limited. A literature review for alternative licensing options for academic teachers to add CTE revealed no research. States should, therefore, consider a range of certification pathways for new CTE teachers entering the profession. Regardless of the pathway, new CTE teachers should receive support, mentoring and professional development (Conneely & Uy, 2009).

Changing Career - Technical Education Teacher Profile

The various changes in CTE and CTE programs have resulted in a different profile for the CTE teacher. More teachers have bachelor degrees and traditional academic backgrounds. As programs are more academic in nature, the emphasis and importance of work experience as part of CTE teacher background/profile has diminished.

Much more is expected of the CTE teacher today especially related to teaching academics and this is likely to continue (National Center, 2011). In addition to teaching technical skills, CTE teachers today must meet student needs for career development, academic achievement, higher order thinking skills, current curriculum and new technologies (McCaslin & Parks, 2002).

Changes in Career - Technical Education Teacher Education

Historically, two paths for CTE teacher licensure have co-existed for almost 100 years; the traditional approach and an alternative approach. The traditional approach is similar to academic areas and the other relies mainly on work experience. Many of the teachers in trade areas may have less than baccalaureate preparation. A study of these two approaches indicate they vary widely from state to state (Zirkle, Martin & McCaslin, 2007)

The CTE program at Kent State University has historically prepared teachers from industry who have no formal teacher education preparation and/or credential. These teachers have been able to obtain a teaching license via an undergraduate or graduate route based on the teacher's academic background. However, in recent years the number of teachers with academic licenses has increased. In, 2010, approximately one-third of teachers pursuing a CTE license at Kent State University were academic teachers.

Program being studied

The CTE teacher education program at Kent State University in Ohio was the program studied. The goal of the licensure program for academic teachers was to assist the teacher in making a successful transition to the CTE environment. The licensure program involves courses and professional experiences designed to assist the academic teacher to be successful in the CTE classroom/program.

Teachers are hired into their respective CTE teaching position prior to taking the required courses to obtain the license. The Ohio Department of Education permits teachers to be placed on a temporary license while they complete the classes to obtain a license. The academic teachers in the study formed a specific co-hort and took all classes together in the 2008-09 and 2009-10 school years.

The program leadership at Kent State University conducted surveys with each academic teacher who completed a credential from 2005 through 2008. Many of the teachers indicated the program was not meeting their needs. Based on the feedback from the surveys, program faculty decided to study this population to determine the effectiveness of the licensure program in meeting the professional development needs of the academic teachers.

The courses and a brief description related to the Ohio Department of Education standards for academic teachers to obtain the CTE license follows. All courses are taken at the graduate level.

1. Curriculum Guide and Design – This course examines the curriculum development process from the CTE perspective. Participants complete a curriculum guide course of study as part of the course outcomes. This document is based on the state approved content standards for the teacher's specific CTE program area.

2. Mentoring course - a CTE teacher educator assists the teacher in making the transition from the academic to the CTE environment. The course consists of on-site visits to each teacher's program/school as well as on-campus meetings on Saturdays for one semester. The focus of the course is on safety, laboratory management, CTE student organizations, advisory committees, program marketing and any other specific individual needs the teacher may have.

3. History and philosophy of Career - Technical Education – the history and development of Career - Technical Education is explored focusing on major theorists contributing to the growth and development of CTE. The contributions and work of B.T. Washington, Melvin Barlow, John Dewey, Charles Prosser and others are

studied. The role of the federal government and legislation are studied along with the factors leading to the shift from Vocational Education to CTE.

4. Issues in CTE – this course examines contemporary issues, programs, practices and developments in Career - Technical Education. Participants also have opportunities to explore individual programming needs.

The teacher takes courses part–time for one year while teaching the specific CTE program. The coursework pattern is:

Fall term – on-site mentoring course.
Spring term – a course on history and philosophy of CTE.
Summer term – curriculum and contemporary issues in CTE courses.

Population studied

The following information describes the teachers who completed the licensure program from 2005-2010. Table 1 indicates that the number of teachers within the five year period had more than doubled. In the period, a total of 48 teachers began the CTE licensure program for academic teachers.

Table 1: Number of Academic Teachers – 2005 through 2010

# of Teachers	Year
6	05-06
8	06-07
8	07-08
11	08-09
15	09-10
Total 48	

CTE programs continue to become more academic in nature as the mission of CTE expands. This is evident in the programs the teachers represent. The following CTE areas were represented by the academic teachers that began the program to add a CTE license. Arts/communication and early childhood education were the two most common academic areas (see Table 2).

Table 2: CTE Program Areas of Teachers with Academic Licenses

CTE PROGRAM AREA	NUMBER OF TEACHERS
Arts and Communication	9
Early Childhood Education	7
Trade and Industry	6
Health/Medical	5

Information Technology	5
Athletic Training	4
Business	4
Other	8
Total	48

Purpose of the Study

The purpose of this study was to determine the effectiveness of an existing licensure program to meet the professional development needs of academic teachers who pursue a license in CTE.

Study Objectives:

To determine:

1. the effectiveness of the CTE teacher education transition program for academic teachers who add a CTE license.

2. the most challenging aspect of the transition to CTE.

3. the program benefits that were most helpful to the teacher in meeting the CTE teacher education standards established by the Ohio Department of Education.

4. Any necessary changes in course content for the transition program.

5. any continuing needs of academic teachers to be successful in CTE.

6. the level and types of support provided by the teacher's school for the transition to CTE.

7. a profile/description of academic teachers who add a Career - Technical Education license.

Design of Study

The study was designed to gather descriptive data on the experiences of 26 academic teachers as they completed a 12 credit hour (semester) university teacher education program to add a CTE license. From 2005 to 2010, 48 academic teachers began the program to obtain a CTE license. The teachers in years 2008-09 and 2009-10 were the subjects of this study.

The total population for the study was 26 academic teachers, 08-09 (11) and 09-10 (15). Six data collection sources were used. Data from three sources were collected while the teachers were pursuing the license. Also, three sources were used to collect data after the teachers had completed the licensure program. Each data source is explained in the following section.

Data collected during licensure program

Each teacher completed four, three-credit hour graduate courses to obtain the license. Teachers were visited by a CTE teacher educator at their specific school. Teachers were also given the option to conduct an individualized project. And, all the teachers completed a course evaluation for the mentoring course.

Mentoring Visits

A CTE teacher educator visited each teacher in his/her classroom four times per semester for a total of 104 on-site visits to the 26 teachers over a 2 year period. The topics discussed during the on-site visits were:

1. Safety (IEP,MSDS, Visual, instructional unit)
2. Marketing
3. Content standards
4. Lab management
5. Advisory committees
6. Articulation/Tech-Prep and
7. Youth groups

Teacher class projects/reports

In one of the four classes, teachers were given the option to select a specific topic to study. Each topic was developed into an individualized class project. A report was prepared and presented to the class. The most common of the 26 topics identified by the teachers were:

TOPIC	CLASS PROJECT	FREQUENCY
Marketing	websites, newsletters, promotional videos, brochures	7
Curriculum and instructional planning	Aligning with state standards	6
Facilities planning	Revising and updating labs	5
Other	Grant development, mentoring, youth organizations, textbook selection	8

Student Evaluation Information

Teachers completed a course evaluation (SEI) for the mentoring course. A total of 24 evaluations were completed over the two year period. One question asked students to rate the overall learning experience of the course. The results of the responses to this question were 4.36 (2008) and 3.92 (2009) on a 5 point scale. The average for both groups was 4.14. The overall ratings for both groups was 76% in the "very good to excellent" category, 55% "excellent", 21% "very good", 8% "good", 7% "fair" and 8% "poor".

The written comments from the evaluations support the overall satisfaction indicated above. The student's written comments indicated:

- Majority found mentoring to be valuable
- The program was unnecessary (3/24)
- Assistance from on-site visits was valuable
- Assistance with lab set up and safety standards
- Assistance with learning how CTE programs function

Survey of Standards

The CTE leadership at the Ohio Department of Education created 44 standards associated with CTE licenses in Ohio (Ohio Department of Education, 2007). Teachers with academic licenses were expected to complete a portion of these. A panel of experts reviewed the 44 standards and selected 21 as appropriate for academic teachers. These were the standards that guided the coursework and experiences the academic teachers completed to add a CTE license (see 21 standards in appendix A).

A survey was developed based on the 21 standards. A 5 point Likert scale was used to obtain feedback on the importance and teacher competence on each standard. Also, demographic data on the teachers was included in the survey to obtain a profile of the academic teachers.

Competence

The respondents rated their competence on each of the 21 standards. The following table illustrates the five highest and lowest rated standards by the teachers studied.

Table 3: Competence by Standards

STANDARD	MEAN	& Standard Deviation
Know and follow emergency/Safety	4.65	.493
Learn to function as a team	4.63	.496
Eliminating harassment	4.61	.698
Uphold student laws	4.47	.745
Uses a variety of instructional techniques	4.44	.616

Embrace value of advisory committees	3.39	1.09
Preparing students for work	3.56	.765
Using a variety of assessments	3.67	.416
Incorporate work-based learning opportunities	3.75	.851
Collaborating with local job sites	3.79	1.13

Importance

Respondents were also surveyed to determine standards they perceived to be most and least important. The most important standard ratings are listed in Table 4. None of the standards were perceived as "least important" since the mean for all 21 standards was 4.53 out of 5. Only two standards (different types of assessments and legislative standards) were under 4.0. The mean for all 21 items was 4.53 indicating that all standards were considered important.

Table 4: Perceived Importance of the Standards

STANDARD	PERCENTAGE & Standard Deviation	
Teaching teamwork	4.95	.758
Safety	4.88	.332
Using experiential learning strategies	4.82	.485
Eliminating harassment	4.78	.428
Using a variety of instructional Techniques	4.72	.419

Follow-up information

Two data sources were used to collect follow-up information from the teachers after they completed the licensure program. Each teacher received a written follow-up survey upon completion of the program. Note, only 16 of the 26 teachers (61%) returned the survey. And, 10 teachers were randomly selected to participate in a telephone follow-up survey. The telephone survey asked teachers to comment on their overall experience after completing the program and teaching, one or two years, in CTE.

Written Follow-up surveys (16) revealed:

- Frequent comments about quality of assistance from faculty and staff

- Curriculum course considered very valuable
- Flexibility in course selection and delivery

Telephone follow-up survey (10):

Since completing the CTE licensure program the feedback indicates that teachers had an initial up-hill struggle to adapt to the CTE environment as well as the students. The teachers reported they required a greater variety of teaching strategies to meet the varying learning levels and needs of the CTE students. However, after an initial adjustment to teaching in a different setting and with different students, most of the academic teachers reported they enjoyed working in CTE.

Teacher profile

Demographic data collected on the teachers in the study provided a profile of the academic teachers who added the CTE license. Eighteen of the 26 teachers completed all items related to their demographic profile. The profile consisted of information related to the teacher's academic background, years of teaching experience and CTE setting where the teachers taught. Teachers in Ohio teach in one of three CTE school settings:

1. Career Center – a central location where a number of schools send students. These centers are usually in rural locations. However, with population changes in Ohio, many of these rural settings have become suburban.

2. Comprehensive Schools – usually large urban districts that offer both academic and CTE instruction in one district.

3. Compact/Consortium – a structure where a specific number of schools share CTE programming. Often, these schools are in suburban locations.

Of 26 teachers studied, 16 were in Career Centers, 6 were in a compact and 4 were in comprehensive school settings.

Of the 18 teachers who completed all items on the demographic section of the survey, 18 had completed the bachelor degree, 9 had a master degree and 2 had earned the PhD degree. The teachers represented the following undergraduate majors:

science (4), elementary education (3), Health and physical education (2), Mathematics (2) and Language arts (1).

The average years in teaching of the population studied was almost 5 years. One teacher had 31 years of teaching experience and another had 23. When these two teachers are removed from the population, the total years of teaching experience drops to under 2 years. 10 of 26 teachers (39%) had no years teaching experience. These teachers were learning how to teach along with learning CTE and how to teach it.

Conclusions

The following conclusions were drawn from this study.

Program Effectiveness

The vast majority of teachers found the program useful. Three of 26 teachers indicated the program was unnecessary but 23 found it useful. The need for the program, coursework and experiences was evident from the data collected. The main benefits the teachers identified from the program related to assistance with:

Curriculum development
Safety and lab management/instruction
Program marketing
On-site mentoring
Assistance with licensing paperwork and logistics.

The mentoring course was a useful experience for the teachers. In part, this is because so many of the teachers were first year teachers.

New teachers need considerable assistance in learning to teach as well learning to teach in the CTE environment. On-site visits/mentoring were viewed as very important for this new teacher. It appears the university CTE teacher educator is the only person who can assist these teachers.

The importance of teaching program marketing was also evident. This standard was identified by a majority of the teachers in all data sources.

Administrative/Advising Support

Assistance with paperwork was also important since teachers were in-experienced. All teachers were placed on a temporary license while completing the CTE licensure program. Teachers needed assistance with obtaining license re; paperwork, processing documents, admission to the university, trouble-shooting and advising. Program faculty and staff provided these important services.

Teaching Safety

The teachers were effective in learning and teaching safety as indicated by on-site visits and survey data results. This is especially important in the lab setting since most of the academic teachers were teaching in a lab setting for the first time.

Changes in Course Content

Program faculty need to make some changes in course content and program delivery. There is a need to provide more attention in coursework to reflect areas of least competence.

This is important because the teachers are new to teaching and CTE and these topics are only covered in licensure program – not in the teacher's academic preparation or by the teacher's school personnel.

Individualized Needs

The results of the study are consistent with the literature calling for support for new CTE teachers. Teachers have their individual profile according to their specific educational preparation and background, their school setting and their CTE program area. These factors result in each academic teacher having unique needs to make the transition to CTE. This is true even though all teachers are addressing the same 21 standards. Program leadership and CTE faculty need to continue to adjust total required hours based on individual teacher profile.

CTE Standards

The CTE standards are only available via CTE licensure program. It is important to note that the items the teachers identified as least competent are only taught in the licensure program. School personnel, mentors and administrators are unlikely to know and be able to teach this content.

Discussion

None of the participants mentioned an interest in an online format or complained about having to attend classes on campus. This is particularly interesting considering some of the teachers drove as many as 2 1/2 hours one way to attend class. This may be a result of the teacher oriented aspect of the program. For example, the courses were offered on Saturdays, in the summer and the mentoring course was offered at the teacher's school. In addition, since the teachers were part of a common group, class meetings may have added to the overall experience of the transition.

The profile of the teachers was a surprise. Specifically, the years of teaching experience indicates a definite need for mentoring in the licensure program. The majority of teachers had only the bachelor degree and almost 40% were in their first year of teaching. A basic assumption in the standards developed by ODE was that academic teachers already possessed many of the standards by virtue of their academic license preparation and background. In this particular study with this population, that may not be the case since the teachers were learning to teach along with learning to teach CTE. In some respects, the teachers were not actually making a transition from an academic teaching setting to a CTE teaching environment. They were actually making a transition from an undergraduate teacher education program to the teaching profession and to teaching in the CTE environment simultaneously. In effect, the teachers were making two transitions at once.

The results of this study have implications for the various alternative licensure approaches currently in use. The results indicate an academic teacher requires education and support to become a CTE teacher especially if they are new to the teaching profession. If a traditionally prepared teacher needs assistance, it follows that other teachers coming from paths

with limited preparation need assistance. It is important for policy makers, state department personnel and university teacher education faculty to be aware of the needs of these teachers. The study indicates experienced teachers need preparation to be successful in the CTE environment.

Many academic teachers approach a CTE licensure program reluctantly. In some cases, academic teachers feel the program is unnecessary since they have a teaching license and background. In this study, 3 of the 26 teachers in the study expressed this view. However, the vast majority of the teachers found value in the courses and meeting the CTE standards. Overall, the teachers reported that meeting the standards enabled them to be successful. Future academic teachers who pursue a CTE license need to know the licensure program will enable them to be successful in the transition from the academic to the CTE environment.

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Appendix A: 21 Standards Academic Teachers complete to add an Ohio CTE license

- Candidates assess students' prior knowledge in relation to current lessons and use that knowledge to design and deliver instruction.

- Candidates seek work-based learning opportunities (e.g., job shadowing, internships, apprenticeships, field trips) that expand student learning.

- Candidates design instructional strategies which provide experiential learning.

- Candidates stimulate student understanding of local, state and federal laws regarding safety concerns; enabling them to recognize hazards in the workplace, while providing a positive school learning environment which serves as a safety model.

- Candidates provide instruction that reinforces academic content standards and design lesson plans based on the approved course of study.

- Candidates promote elimination of harassment, including discussions of bias and stereotyping in school classrooms/labs and the workplace.

- Candidates define legislative and institutional responsibilities when preparing students for work and/or continuing education.

- Candidates develop instructional strategies that address communication skills in preparation for high-skill, high-wage, and high demand occupations.

- Candidates demonstrate commitment to building technological skills necessary for an evolving workplace in a global society.

- Candidates learn to function in a team; applying knowledge from other disciplines.

- Candidates enhance learning by using a variety of materials and resources.

- Candidates use authentic, contextual instructional approaches such as problem-based learning, project-based learning, and service learning that contribute significantly to students reaching specified learning goals.

- Candidates integrate CTSO programs and activities to extend student learning.

- Candidates collaborate with local job-sites and agencies to ensure student success.

- Candidates maintain effective communication with school and community partners for support of the program.

- Candidates uphold the laws related to student rights, and teacher responsibilities (e.g., equal education, IDEA, discipline codes, child abuse reporting and confidentiality).

- Candidates accurately define the characteristics, uses, advantages, and limitations of different types of student assessments, including but not limited to state value-added dimension reports and data.

- Candidates select, construct, and utilize assessment strategies and instruments appropriate to the learning outcomes being evaluated.

- Candidates embrace the value of an Advisory Council as a means of networking, exploring job experiences, and staying current on program trends.

- Candidates know and follow emergency procedures, maintain safety equipment, and ensure safety procedures appropriate for the activities and abilities of students.

- Candidates prepare an appropriate program design, and develop and implement marketing strategies that promote their program.